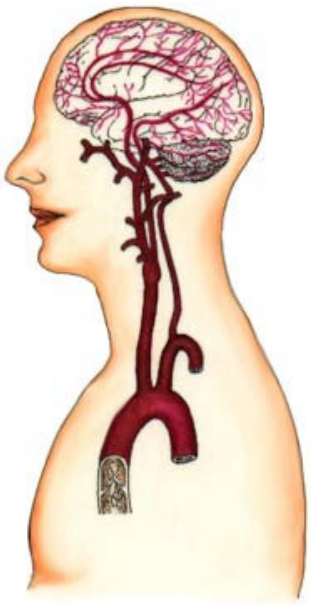
X-Plain™
Thyroid Surgery
Reference Summary

The thyroid gland is an important gland that helps regulate the way the body works.

Different diseases can affect the thyroid gland. These diseases are common and affect many people. Most of these diseases are easy to treat.

This reference summary explains the most common diseases that can affect the thyroid gland. It also explains the treatment options including medications and surgery.



Anatomy And Function

The thyroid gland is a butterfly-shaped gland located in the front of the neck just under the Adam's apple.

The gland partially wraps around the windpipe, or trachea.

The feeding tube, or esophagus, lies behind the trachea.

Within the thyroid are other small glands known as parathyroid glands.

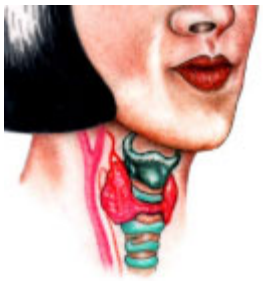
Two important nerves pass through the thyroid on their way to the voice box and vocal cord. These nerves control the vocal cords and are known as the "recurrent laryngeal nerves."

The main function of the thyroid gland is to make the thyroid hormone, which regulates how much energy the body is burning. This is known as metabolism.

The thyroid gland uses iodine from the blood to make the thyroid hormone.

A small gland in the base of the skull and under the brain, known as the pituitary gland, controls the levels of the thyroid hormone in the blood. It secretes a hormone known as Thyroid Stimulating Hormone, or TSH. TSH causes the thyroid gland to produce thyroid hormone.

The parathyroid glands produce the parathyroid hormone or PTH, which helps the body maintain a normal level of calcium in the blood.



Hypothyroidism

When the thyroid gland does not produce enough hormones, hypothyroidism develops. "Hypo" means less. The decrease in thyroid hormones slows metabolism. This can lead to a feeling of fatigue, slow thinking, and even depression.

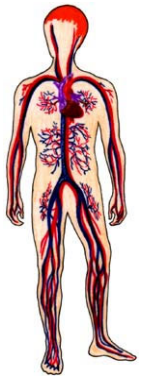
Patients can easily gain weight because their bodies do not use as many calories.

Patients may feel cold because it is more difficult for them to keep their normal temperature.

Constipation or heavier menstrual periods can result from hypothyroidism.

The skin, hair, and nails can become dry and brittle.

Hypothyroidism can be caused by a lack of iodine, which can cause the thyroid gland to swell trying to make more thyroid hormone. This condition is known as goiter.



A disease called Hashimoto's Thyroiditis can cause hypothyroidism. In this condition, the body's immune system mistakes thyroid tissue for a foreign material and attacks it. This attack can destroy thyroid tissue and may result in hypothyroidism.

Tumors that affect the pituitary gland can damage the area that secretes TSH. Without TSH, the thyroid gland does not make thyroid hormones and the patient will have hypothyroidism.

Hyperthyroidism

When the thyroid gland produces extra hormone, hyperthyroidism develops. "Hyper" means more.

Hyperthyroidism causes patients to be jittery and nervous. Their heart rate increases and could be irregular. Blood pressure can also increase above normal. Patients can lose weight even if they are eating more.

People with hyperthyroidism can feel tired from all the nervousness and hyperactivity. They may also feel hot in cool environments.

Other symptoms of hyperthyroidism include lighter or shorter menstrual periods, frequent bowel movements, and hair loss.

A disease known as Graves' disease usually causes hyperthyroidism. In this condition, the thyroid gland secretes more hormone, resulting in hyperthyroidism. Bulging of the eyes, also known as exophtalmos, may also occur.

At times, a nodule in the thyroid gland becomes overactive for no apparent reason, sometimes resulting in hyperthyroidism.

Lumps

The thyroid gland may develop small lumps such as tumors, cysts, and cancers. These lumps are called nodules.

These nodules can be seen or felt by the patient prior to seeing a doctor.

Most of the thyroid nodules are non-cancerous, or benign. Most of the time they do not affect the levels of hormones produced by the thyroid gland.

Diagnosis

Diagnosing thyroid problems includes examining the patients' medical history, as well as family history. Some thyroid problems run in families.

A physical examination is important to examine the thyroid itself, as well as the heart rate and blood pressure.

Blood tests help determine the levels of thyroid hormone and TSH. If the doctor believes that the pituitary gland is causing the disease of the thyroid gland, he or she may order other hormone tests.

Special tests using safe radioactive iodine may be done to determine whether parts of the thyroid are overactive or underactive. These are known as radioiodine uptake tests and thyroid scans. The hyperactive nodules that pick up the radioactive iodine and light up the scan are known as "hot" nodules. Those that do not pick up the radioactive iodine are known as "cold" nodules.

Another test uses ultrasounds to check the thyroid, helping to pinpoint the exact location and size of the thyroid nodules. It also determines whether the nodule is solid or whether it has fluid in its center.

A biopsy can also be done to determine if a nodule is cancerous. This is done using a small needle, which takes out cells to be sent to the lab for further testing.

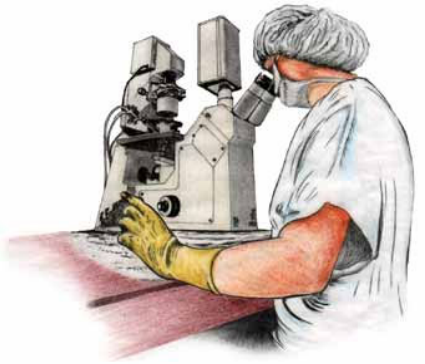
Treatment Options

Most hypothyroid conditions can be treated with oral thyroid hormone replacement.

Sometimes hyperactive thyroid glands may improve without intervention when the inflammation causing the hyperactivity decreases. During the hyperactive period, patients may be given medications that will slow the heart rate down.

If these hyperthyroid conditions do not improve with time, medications can be used to block the excess thyroid hormone. If this fails, radioactive iodine can be given to destroy the hyperactive thyroid tissue. This can lead to the total destruction of the thyroid gland, resulting in hypothyroidism. Hypothyroidism may then be treated with thyroid hormone replacement

Surgery is usually recommended for the removal of hyperactive nodules that cannot or should not be treated with medications or radioactive iodine therapy.



Surgery

Thyroid surgery is done under general anesthesia.

The thyroid gland is approached through a curved incision at the base of the neck.

The entire thyroid or just the half with the abnormality in it is then taken out.

The skin is then closed.

After surgery, the patient is observed in the hospital for one or two days before going home.

Risks and Complications

Thyroid surgery is very safe. There are, however, several possible risks and complications, which are unlikely but possible.

You need to know about them just in case they happen. By being informed, you may be able to help your doctor detect complications early.

The risks and complications include those related to anesthesia and those related generally to any type of surgery.

Risks related to anesthesia include, but are not limited to, heart attacks, strokes, pneumonia, and blood clots in the legs. If the blood clots get dislodged, it may cause respiratory failure. Any of these complications could lead to death.

Complications of anesthesia are more likely in patients with previous medical problems, such as heart attacks or lung problems. These risks will be discussed with you in greater detail by your anesthesiologist.

Some risks are seen in any type of surgery, but these are rare. These include: infection, which may have to be treated with antibiotics. Bleeding, which may require a blood transfusion. Skin scar, which may be uncomfortable or unsightly.

Other risks and complications are related specifically to this surgery. These again are very rare. However, it is important to know about them.

The recurrent laryngeal nerves, which help open the vocal cords in the voice box, may be injured. This may lead to temporary or permanent hoarseness. Rarely, it can require a tracheostomy, which is when a special tube is inserted into the trachea to allow breathing.

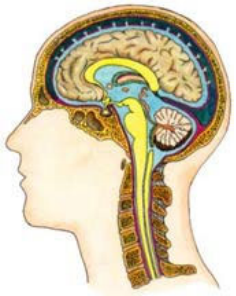
It is normal to have some hoarseness immediately after the operation, though this should not last more than a week or two.

The parathyroid glands may get injured, which may lead to low levels of calcium in the blood or hypoparathyroidism. This can easily be treated with permanent calcium supplements. If not treated, low levels of calcium in the blood can be fatal.

The symptoms of low calcium in the blood can appear 24 to 48 hours after surgery and can cause jitteriness and involuntary muscle twitching. Patients should tell their doctor immediately if they feel these symptoms.

It is normal for the parathyroid glands to not function adequately for a short period of time after surgery.

Other very rare risks include injuring structures in the neck such as the breathing tube, the feeding tube, and the blood vessels of the neck that take blood to and from the brain.



After Surgery

You should be able to recover and get back to your normal life in two to three weeks. This depends on your condition. Your doctor will tell you when you can go back to work.

After surgery, avoid strenuous activity and getting your incision wet.

Call your doctor if you notice swelling or bleeding of the incision or signs of infection such as fever.

You should also call your doctor if your throat continues to be sore longer than three weeks.

Within a week, your doctor will check the incision and remove any stitches you may still have. After surgery, you may need to take replacement hormones. Your doctor will check the level of thyroid hormones in your blood and adjust the dosage of the hormone pill until it gets to the right level.

Summary

Thyroid problems are fairly common. Most of these problems can be easily treated.

Any medications prescribed, as part of the treatment should be taken exactly as prescribed.

Thyroid surgery is very safe. You can get back to normal activities in a few weeks. Some complications exist. Knowing about them may help you detect them early if they happen.